THE RARS -EXCITER-

RALEIGH AMATEUR RADIO SOCIETY
WORLDWIDE FRIENDSHIP

CLUB CALL: W4DW OCTOBER, 1986 ISSUE 199 REPEATER: W4DW/R 146.04/64

LEADING EDGE

SHERMAN STARNES
W4TZU

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The conditions aboard OSCAR-10 have continued to deteriorate since mid-August when the on-board computer failed for the second time. The satellite doesn't respond to any commands sent to it. Various modes of operation can result from the random configuration of the memory but the mode B transponder has been locked on. The latest Amateur Satellite Report indicates that light use of the transponder is in order for a little over three and one-half hours on each orbit with power not to exceed 100 watts ERP.

The most critical aspect of further operation is the condition of the batteries. Without telemetry, the battery condition cannot be determined and, being uncontrollable, the spacecraft cannot be re-oriented to obtain the optimum sun angle for charging the battery. By the time you read this the sun angle will be so poor that the satellite should begin to shut down. There is almost no hope that OSCAR 10 will recover when the sun angle improves enough to power up the spacecraft.

Efforts continue to locate useable portions of memory, but as might be expected, the memory portions which have thus far been unaffected are falling victim to the radiation. If the accumulated charges bleed off during the expected power-off period, and if the spacecraft powers up in anything resembling a useable mode, the good fortune will be short-lived because the same exposure to the sources of radiation will start again.

When you consider that all the problems experienced by OSCAR-10 can be traced back to the collision caused by the third stage of the launch vehicle, one wonders who are the professionals and who are the amateurs.

The Japanese amateur radio satellite which was launched in August and named JAMSAT-OSCAR-12 has been renamed by the Japanese amateurs. It is now known as Fuji-OSCAR-12 or FO-12. The Japanese have a tradition of giving their satellites the names of flowers so I suppose this is in compliance with the tradition. Regardless of the name, the new spacecraft is a solid success. The performance is actually improving since, in the beginning, the spacecraft was tumbling and the beacon and transponder signals underwent deep fades. The satellite employs a passive magnetic stabilization scheme and as time goes by the stability improves slowly. It wasn't until recently that I could hear myself through it because of that effect. The transponder is receiving heavy use and, as a result, the satellite has been turned off for several orbits each day to allow the batteries to recharge.

EDITOR: ANN M. BRADLEY, WA4APK - RT 1, BOX 125 - APEX, NC - (919) 733-4893

MINUTES OF THE MEETING

1986 RARS OFFICERS

President.....Bruce Eggers.....779-0266
Vice President...Rollin Ransom....779-5021
Secretary.....Sue Meyer Parks..544-7952
Treasurer.....Tim Buehlman.....851-7738

The regular monthly meeting of the Raleigh Amateur Radio Society was held Sept. 3, 1986 at the First Presbyterian Church, S. Salisbury St. President Bruce Eggers, WA9NEW, called the meeting to order and welcomed the 25 members and 10 guests.

The first item of business was the introduction of the new Wake Co. E.C. Tom Parker, N4MYB. Tom informed the members of the simulated emergency test comming up in Oct. He brought applications for amateur license tags. Tom asked the group if they thought ARES should hold meetings, if so how many. He asked about the use of the call up list. No comments from the group were made at that time.

Bruce gave a report on the highlights of the Aug. Board Meeting. Topics mentioned were: The transfer of all treasury business from Norm, KN4G, to Tim, N4IQA. Bruce has sent flyers to the Wake Co. School's Science teachers. These flyers encourage the teachers to promote ham radio. As a new function of being a special service club, RARS will be obtaining a mailing list of new calls in the 275, 276, and 277 zip code areas.from ARRL. This list will be used for a new membership drive. Since this is a large territory, all clubs in the area will be listed.

John, WB4WWT, told the group about recent activities with the Explorer Post Program. There will be a meeting Sept. 16 at St. Marks Methodist Church sponsored by BSA. There, invitations will be mailed out which were derived from the survey.

KI4ME, Bruce Morris, talked about his recent appointment as 2nd district E.C.

KB4LWD, Walter, told the group of two special events projects he is organizing. The first is at Kidscene 86, Meridith College, Sept. 27. Volunteers are needed. The second is a commeration of the Constitutional Bicentenial. This will span a 2 year period with stations to be set up in Philadelphia, Wash.D.C. and all the present capital cities of the original 13 colonies. A net will be established to discuss details.

A reminder was made about the beginning of a novice class at the McKimmon Center. This 12 week class begins Sept. 8 from 7-9 pm.

Bruce reminded the group of the picnic sponsored by YL-RARS Sat. Oct. 11. Please make advanced reservations with Doris Plaks (XYL-KN4G)

Vice President Rollin Ransom, NF4P, announced the receipt of a letter of appreciation and two 35mm slides from Gordon Fisher, W6MVZ's son. The slides have the club name with a picture of our state. The secretary will file them. Rollin added that Chris Hux, who called K4HF as a result of the WPTF talk show, has passed the technician test. Chuck guided Chris, who is blind, to Handi-Hams.

The Vice President introduced the program for the evening. The topic was traffic handeling by Bob Corns, K4MC, with Jeff Parker, WA1WXL, expanding on Navy MARS traffic.

Several prize drawings were given. The meeting was then adjourned.

Sue Meyer Parks
RARS Secretary

HAVE A SAFE AND SCARY HALLOWEEN

ISN'T REPEATER DX'ING STILL A TWO-FINGER NO-NO?

by wa9new

I'm SURE it is! As with anything appearing in the Exciter, we're always open to countering views. Have your say. Drop Ann a line. But before you do, read on. And what brings up this topic?

Well, we're now in that time of the year when troposheric openings become fairly common on the VHF and UHF bands. One occurred on the evening of August 25th. A relative newcomer to Amateur Radio in Ohio was 'dead-full-quieting' into the local K4ITL 28/88 repeater. He took great delight in providing "DX" contacts to anyone who wanted to "work Ohio". He also freely noted the fact that he was raising "at least four or five" other 28/88 repeaters and he commented several times that users of those other repeaters were probably "perturbed" with his operation. I'm sure they were! So why would he continue? Why would so many local hams encourage him to be such a disruptive factor to operations on "four or five" other repeaters? I don't understand!

Troposheric openings are not all that rare. VHF and UHF contacts of many hundreds, even thousands, of miles are almost routine to those who are 'into' that aspect of the hobby. Let me make a suggestion. When a local repeater gives evidence of anomolous propagation and the thought of "working Ohio" on two meters becomes enough of a passion to tempt you to hit the PTT button on your FM rig, do all the hams who are monitoring "four or five" other repeaters on the same frequency a big favor. QSY to a simplex frequency, go down to the CW or SSB part of the band, or better yet go up to the 220 or 440MHz bands. Such openings are more common and longer lasting at shorter wavelengths.

73 ES GUD DX

YL RARS * FIRST ANNUAL PICNIC *

YL RARS met September 10th at Cameron Village K & W Cafeteria with 7 members present.

The meal and conversation were great. The main topic for the meeting was the finishing details of the October 11th picnic. Wynne J. was nice enough to prepare a list of all the picnic information for the telephone committee. We hope to contact all RARS members to see if they would like to attend. The following is a list of the picnic information.

DATE: Saturday October 11, 1986

PLACE: Cary Lion's Club Shelter

MENU:

Pork Barbeque	Fried Chicken
Boiled Potatoes	Slaw
Brunswick Stew	Ice Tea
Rolls/Cornsticks	Coffee

Beer (contributions requested at tap)

COST: $6.50 per person (under 10 free) Payment must be in advance. Your check should be made out to RARS and sent to:

Mrs Norman Plaks
1205 Country Ridge
Raleigh, NC 27609

We must give the count to Don Murray's by Oct 3rd so please make your reservations ASAP. Cancellations before October 7th should receive a refund after the picnic is over.

**** Please bring folding chairs ****

This is YL RARS first project. We hope it will be a big success and help the families of RARS' members get to know each other.

YL RARS meets every second Wednesday at the Cameron Village K & W. All ladies are welcome. We hope to see a few more new faces each meeting. The next meeting will be Held OCTOBER 8th.

HOPE TO SEE YOU AT THE PICNIC!!!!

Cindy Frate
YL RARS Secretary

TTNTT
OP-AMPS, PART 4
wa9new

OK, we finally got to it. "A Simple, Effective Receiving Aid" from the Feb. issue of QST. I won't reproduce the article and schematics here, it would take far too much room. If you're interested but can't find the article, let me know. I'll get a copy to you.

The idea isn't new. Take some range of audio signals and run them through both a low-pass and a high-pass filter. Apply the low frequency signals to a left speaker (or better yet, to the left side of a stereo headset), and the high frequencies to the right. Helpful with voice signals (background noise gets 'spread-out' and off-frequency SSB signals get 'shifted away' from the desired signal), the effect is even more pronounced with CW. Including op-amps in the filter provides gain and isolation that was missing in passive filter designs.

Take a look at figure 2 on page 17. The top two op-amps, U1C and U1D and their circuitry, comprise a four-pole low-pass filter and U1A and U1B, et al, a high-pass filter. R_{10}-C_6 and R_{15}-C_7 look like the R-C network in figure A from the last TTNTT. Likewise C_3-R_5 and C_2-R_4 are part of the high-pass network in Fig.B from TTNTT. Less obvious is that R_9-C_5, R_{16}-C_8, C_4-R_8 and C_1-R_1 make up the 'other half' of each stage of each filter section, but they do.

The mathematics required to show the performance of these filters is a bit lengthy but the basis is just as covered in Part 1 of this series and used as an example in Part 2. If you assume there is no voltage across the two input pins and no current flowing in or out of the pins, then the required analysis becomes nothing more than the repetitive application of Ohm's Law! Pick an arbitrary output amplitude and phase and solve for what input would produce it. I've written a BASIC program that takes the drudgery out of the analysis and I've breadboarded the four-pole design.

Anyone interested enough to work with me on making this a club project?

* * * PACKET RACKET * * *

by
WA9NEW

WA9NEW? Why's he writing "Packet - Racket" this month? I've never seen that callsign on my screen.

True. But this isn't a column on packet from the perspective of someone who's never operated the mode. Next best (or worst), it's a column on packet from the perspective of someone who's just come up on the mode (alias WB4TOP). But more importantly, it's a column on packet from the perspective of someone who's had a chance to help newcomers to Amateur Radio, and some perspective newcomer, come up on packet.

We operate from the club station at Wake Technical College. We're not on during the evenings and weekends when most packeteers are on. We're on during the weekday hours when you're at work. Oh, we've made a handful of QSO connects. Our first was with NF4P and we're proud to display Rollin's QSL in the shack. But we've also been up on K4IWW-1 and WA4LPD-1. And that' where we see some youthful enthusiasm.

Bert, W4FMN, our club's trustee, saw the potential back a year or more ago. He fought the bureaucracy to get an equipment purchase approval for a TNC and we asked K4IWW to come out and give us an overview. And I mean to tell you we billed that club program BIG! An expert (that's somebody from out-of-town with slides) from 'Big Blue' to talk about a modification of X.25! Should have the square-wave advocates hanging out the windows.

I was devastated! Maybe ten licensed faculty and students showed up for Will's presentation. But those days are behind us now. What's worth reporting here is some of that 'youthful enthusiasm' I referred to.

I think most of us would agree that the youngsters of the early twenties, who were thrilled to hear 8XK in Pittsburgh playing music, right up to the youngsters of the '70s, who first listened and then hit the mic when 'Big Mama' told the 18 wheelers to "put the pedal to the metal 'cause the county mounty's at the trough suckin' java", and then 'moved up' to Amateur

'NEW LINE

by Bruce Eggers, WA9NEW
President, RARS

TNX ES 73 K1PLR DE W4DW

Harry and Pat, KA1JNW, are returning to their native New England. Harry has taken a position with a firm in Stamford, CT. At their parting, Harry donated quite a number of items to RARS. Several have significant value. I will suggest to the Board that those items be auctioned in November. Many small items will be brought to the next meeting. Some 100+ (perhaps 200!) back issues of magazines, a few old Handbooks and assorted miscellaneous were given to the students at the first night's Novice class. Many thanks Harry and best wishes to you and Pat. We enjoyed your company and we appreciate the fine efforts you put into RARS activities. GL

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PACKET RACKET (Continued)

Radio, have been replaced in the 80s by youngsters who can keystroke in and out of Livermore Lab's mainframe and turn fusion research into 'Alien Invaders'. They may not know that you can't be put in jail for breaking Ohm's Law but they know that what happens on their screen has something to do with little circles with minus signs running in and out of 'chips' on wires and printed circuit boards. And it's these keystrokers we've got to appeal to if we're going to continue to meet the objectives of 97.1.

Let's vow that every public demonstration of Amateur Radio include a packet capability. RARS and the Wake Tech club will be involved in several such activities this Fall. Hopefully with an Explorer Post, in at least a few of the middle schools in the Wake County system, and, of course, at the Christmas Message booths on campus and at Crabtree Valley Mall. We'll probably need some help and I'm sure it'll be there if we ask. I'll catch you on the repeater or ring your phone. (Oops. Sorry. That's outMODED thinking!) Watch K4IWW-1 and WA4LPD-1 for PACKET DEMO announcements. (Then I'll ring your phone.)

HAM CLASSES IN SCHOOLS, CONT'D

(See 'NEW-LINE, Sept. issue.) Two hundred fifty science teachers later and not one call! We'll keep trying!

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"FIRST ANNUAL" FALL PICNIC

Sure figures Pat and I are going to have a fine time at the picnic Oct. 11. Made your reservations yet? Can't buy all that BBQ, chicken and what all without money and we won't know how much to get 'til we know who all's comin'! Get your check in to KN4G's XYL Doris. You can always cancel as late as Oct. 7.

SATURDAY, SEPT.27!

If this gets to your mailbox in time, don't forget to come out to Meridith campus for the W4DW demo station.

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EXPLORER POST PROGRESS

WB4WWT has a meeting scheduled with Scout officials but we won't get any info from that in time to meet Ann's deadline. Stay tuned!

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NOVICE CLASS UPDATE

The hams didn't quite outnumber the Novice aspirants but it's close. I think we're up to 18 after two weeks. Not bad! N4MCC's got everything running and the 'guest speaker list' includes at least K4FAD, KB4OKB, N4OIC (recently upgraded to General, a long 'toot' on the RARS whistle to Ardie!), N4IQA and WA9NEW. (I sure hope I haven't overlooked anyone but Larry's got the list.) Drop by one Monday evening and meet the potential new hams. The more the merrier!

-...

SCOUTS ES WB4INM

Dianne found a chance to help Amateur Radio and the Boy Scouts. A co-worker wanted a demo for a troop, but he wanted it in Burlington! Our sister SSC, the Alamance ARC, has jumped at the chance to again work with the Scouts. Our TNX to WB4INM and AARC!

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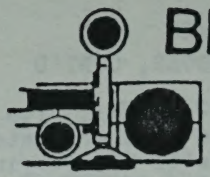

DIGITAL SCOPES ANYONE????????????

In the Electronics Department of Wake Tech we have fine-type, top-of-the-line industrial-type scopes and our students thus use the same type equipment that they will encounter in the World of Work. But they ARE analog. So what's so good about digital scopes and why should we buy any? Well, the analog scope has two basic signal routes, vertical and horizontal.The V route has to do with the amplitude of the input signal and the H route provides the time base for the signal.The 2 input signals can be multiplexed in the CHOP or the ALTERNATE mode.(The reason for MUXing is that the scope has only one e beam to display both V channels).The CHOP mode switches between channel 1 and channel 2 on a single sweep.Past sweep speeds of 10 usec/div,the CHOP mode gets too "choppy" to provide a readable waveform. So we go to the ALTERNATE mode where first ch1 is displayed and then ch2.But this arrangement does not do too much for single shot events or when trigger levels vary. So now we try the digital scope. This scope uses two analog-to-digital converters(ADCs)with two completely separate vertical input channels.This reminds one of the ole dual-beam analog.While the analog sweep circuits create such glitches as nonliinear sweeps,the ADC of the digital can display 2 channels single shot without showing a chopped-up waveform.The clock used is crystal controlled ,insuring a linear sweep. The type ADCs used can create problems,i.e. the flash type is faster but its resolution is less; the successive-approximator is slower but provides better resolution.However, in any event (!), digital scopes use their two ADCs to digitize the waveform in one sweep,with all the benefits of an expensive dual-beam scope(2 scopes yet!). So,for these few, but cogent reasons, I am going to try and obtain(~~more analog~~)(digital)scopes. (SELECT ONE). Your taxes will help.

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SGT YORK-AUDIE MURPHY-COLIN KELLY

What makes a hero?He is courageous, he is intelligent,he takes chances that others shy away from, and he is generally dedicated to his job. If these criteria are not perfect,fitting every hero,then we do not have an open and shut case. Yet,in my experience, knowing several holders of the Medal of Honor, and enduring 16 months of frontline combat,I feel that these characterizations are close enough for my purpose.Last issue of the EXCITER,one man questioned the antics of young WB4RDT in operating CW in a thunderstorm.The unsafe practice of such operation galled the writer.Now every novice should be aware of grounding all equipment,especially during times of electrical disturbances from the sky.Highly trained.highly skilled operators like Wilbur are fully cognizant of the danger in grinding out CW in a thunderstorm.I do not recall if I termed Wilbur a hero.One of the best CW ops in RARS, he knew risks were present and he felt top CW performance in racking up points for ole Siwash was worth it.Lesser types far from being in the league with WB4DRT,felt their pathetic CW or mousey A3 was not worth even the ante.So they cashed in their meager chips early and marveled more at the SKILL of our hero than shuddered at the DANGER he faced.When a pro takes his chances and wins,let the novice remember all the rules of safety and when his time inevitably comes,decide whether he will retreat to complete safety or,if he indeed has a talent,he will seize the fallen flag and charge to victory.Let's just say "WB4RDT has the RIGHT STUFF"Nuf said

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PROGRAM FOR OCTOBER

Ron, AA4VK, and Bert, WA4TLI, will give the October program "DX-peditioning to the Caribbean." The Program will include slides from their 1985 CQWW Phone Contest operation from St. Lucia and plans for their upcoming October operations from Dutch Sint Maarten, Anquilla, and French St. Martin. Don't miss this one !!!

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A BEGINNERS GUIDE TO OSCAR-10

6. The Transmitter (and how to use it)

To summarize (Continued)

Monday UTC (that is whenever its Monday in Greenwich, England), is called QRP day on OSCAR-10 and all users are encouraged then to only use 10 watts or less of transmitter power for that 24 hour period. I've operated on QRP days on several occasions with 10 watts and less and had some really fascinating QSOs; its surprising how well the bird works on low uplink power when everyone else is using similar power.

Due to the extremely high loses with coaxial cable at these frequencies I do again recommend that you carefully consider using hardline (or at least 9913) for the uplink signal. I think you'll find it to be a worthwhile investment, along with type-N connectors whereever possible in your system.

Since we talked about how to transmit on OSCAR-10, it is now appropriate to discuss what not to transmit. OSCAR-10 is not intended for FM operation. FM is very wasteful in terms of its use of band space and is not feasible on mode B. So, please limit yourself to single side band, lower side band uplink, upper side band downlink, CW, RTTY, Packet, and similar modes. Everybody who uses OSCAR-10 will appreciate it.

While we're talking about mode L, let me give you a few details about it. Mode L uplinks, at 1269 MHz, and downlinks in the 436 MHz band. I personally have had no experience with the uplink part of this but from discussions I have had it doesn't seem impossible. Every chance I get, I do listen to the Mode L downlink beacon. It comes out at about 436.040 MHz from OSCAR-10. That is the "engineering sub- channel" on OSCAR-10. I find that many times particularly when two meters may have a lot of local QRM or QRN that Mode L will be crystal clear. The RTTY beacon downlinks on LSB on Mode L while QSO's on Mode L are on USB. It is an excellent way to listen to the beacon if you're unable to copy it plainly on Mode B. Even with no pre-amp and just the antenna that I use for my Mode B uplink signal I found that I can copy the Mode L RTTY beacon 100%. There are also many pre-amps in this frequency range. Also try listening to Mode L stations. A lot of valuable information can be had there. Listen around 435.50 for these QSOs. Mr. Bill McCaa is kind of the guru on Mode L. Contact him at PO Box 3214, Boulder Colorado 80307 if you have more questions.

Continued next month.....

FCC NORFOLK OFFICE MOVES

Effective September 8, 1986, the new address for the Norfolk FCC office will be:

5656 Shell Road
Virginia Beach, VA 23455-3725

Telephone Recording Number: (804) 363-0900
Public Telephone Number: (804) 441-6472

Public inquiries concerning telecommunications matters, complaints of electronic interference, and schedules for radio operator examinations should be directed to the above address. Office hours are 8:00 a.m. to 4:00 p.m. --FCC--

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SPECIAL SERVICE CLUB

RARS meets each first Wednesday at 7:30 at First Presbyterian Church, 116 S. Salisbury Street

Calendar

Oct 1 - Regular RARS Meeting
1st Presby. Ch. 7:30 pm

Oct 4, 5 - Several DX Contest
See Sept. QST

Oct 8 - YLRARS Dinner Meeting
6:30 pm Cam. Vil. K & W

Oct 10 - RARS Exciter Copy Deadline

Oct 11 - RARS-YLRARS Picnic
Cary Lions Club Shelter
Pre-reg by Oct 7 - KN4G

Oct 12 - Maysville, NC Hamfest

Oct 15 - RARS Advisory Board Meeting
7:30 pm NCSU Faculty Club

Oct 18 - ARRL Ammual Simulated Emergency Test

Oct 17-26 - RARS/Red Cross NCS Fair
Public Service Project
Contact Jack Kenny, WB4MCU

Oct 25, 26 - CQ World Wide DX Contest, Phone